

Final Report
for
NASA Grant NSG 7008
for the
Support of the Third Solar Wind Conference

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Prepared by

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for

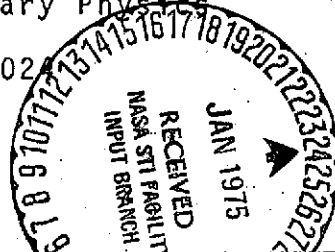
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The Third Solar Wind Conference was convened at the Asilomar Conference Grounds, Pacific Grove, March 25-29, 1974, almost exactly three years after the previous conference, under the auspices of the Universities of California and Arizona. The conference both surveyed the increase in understanding of the solar wind over the past three years and pursued in depth a number of solar wind related topics not covered adequately in 1971. There were more than 120 participants, over one-quarter of whom were from countries other than the United States. The conference consisted of nine sessions: Solar Abundances; History and Evolution; Solar Corona; Macroscopic Properties; Cosmic Rays as a Probe of the Solar Wind; Spatial Gradients; Stellar Winds; Microscopic Properties; and Solar Wind Interactions. The sessions consisted mainly of invited reviews followed by discussion, with shorter contributions scheduled at the end of the sessions as time permitted. The proceedings (1) were published in the Fall of 1974 and are available in a soft-cover photo-offset edition from the Institute of Geophysics, UCLA for a nominal charge. The proceedings contain the invited talks and contributed talks of those authors who submitted manuscripts. Over 80% did. Some of the longer reviews have been submitted for publication to the Reviews of Geophysics and Planetary Physics and hence do not appear in the present volume. Two summaries of the conference have been prepared: one for the journal Earth and

Extraterrestrial Sciences (2) which specializes in conference summaries and one in Space Science Reviews (3) which is publishing the proceedings of the STP symposium in Brazil at which a review of the Third Solar Wind conference was presented. Attached are the program of the invited talks at the conference and the table of contents of the proceedings.

Bibliography

- (1) C.T. Russell (editor), Solar Wind Three, 478 pp., Institute of Geophysics, UCLA, Los Angeles, 1974.
- (2) C.T. Russell, The Third Solar Wind Conference, March 25-29, 1974, Earth and Extraterrestrial Sciences, in press, 1975.
- (3) C.T. Russell, The Third Solar Wind Conference: A Summary, Space Sci. Rev., in press, 1975.

PROGRAM

Third Solar Wind Conference
Asilomar Conference Grounds
Pacific Grove, California
March 25-29, 1974

Sponsors: American Geophysical Union
National Aeronautics and Space Administration
University of California
University of Arizona

Opening Remarks 0830

I. The Problem of Solar Abundances Monday AM

"A critical examination of our knowledge of solar abundances from the theory of nucleosynthesis to solar wind and solar cosmic ray observations".

Chairman: L.H. Aller
University of California
Los Angeles

Solar Abundances: A Nuclear Astrophysicist's Viewpoint 0845

W.A. Fowler
California Institute of Technology

Coffee 0945

Coronal and Solar Wind Abundances 1000

J. Hirshberg
High Altitude Observatory

Solar Cosmic Ray Observations 1100

D. Hovestadt
Max Planck Institut, Garching

II. The History and Evolution of the Solar Wind

Monday PM

"An examination of the evidence for changes in the solar wind properties over the history of the solar system".

Chairman: J.W. Chamberlain
Rice University

The Primordial Solar Wind 1330
C.P. Sonett
University of Arizona

Paleontology of Cosmic Rays and Solar Flares 1430
P.B. Price
University of California, Berkeley

Coffee 1530

The Solar Wind as Deduced from Lunar Samples 1545
P. Eberhardt
University of Berne, Switzerland

The Hydrogen/Deuterium Ratio 1645
S. Epstein
California Institute of Technology

III. The Structure and Dynamics of the Solar Corona

Tuesday AM

"A study of the lower boundary of the solar wind and how the structure and dynamics of this region influences the solar wind".

Chairman:

Solar Radio Burst Observations 0830
R.G. Stone
Goddard Space Flight Center

Direct Observations of Magnetic Bottles 0915
J. Gosling
High Altitude Observatory

Coffee 0945

Coronal Structure and the Solar Wind 1000
 E.C. Roelof
 University of New Hampshire

Soft X-ray Observations of Coronal Holes 1100
 A. Kreiger, G. Vaiana and A. Timothy
 American Science and Engineering

EUV Observations of Coronal Holes 1115
 R.W. Noyes, G. Withbroe and E. Reeves
 Harvard College Observatory

IV. Macroscopic Properties of the Solar Wind Tuesday PM

"The solar wind as a magnetized fluid".

Chairman: M. Dryer
 NOAA/ERL

Solar Wind Structure and Dynamics 1330
 A.J. Hundhausen
 High Altitude Observatory

Discontinuities in the Solar Wind 1430
 G.L. Siscoe
 University of California, Los Angeles

Coffee 1530

Suprathermal Particles 1545
 R.P. Lin
 University of California, Berkeley

Interpenetrating Solar Wind Streams 1615
 W.C. Feldman
 Los Alamos Scientific Laboratory

Numerical Simulation of Observed Interplanetary Shock Ensembles 1630
 R.S. Steinolfson, M. Dryer and Y. Nakagawa
 National Oceanographic and Atmospheric Administration

Neutral Sheet Observations 1645
 V. Formisano
 LRTSPNS/CNR, Frascati, Italy

Long-term Solar Wind Variations 1655
 G. Moreno and C. Signorini
 LRTSPNS/CNR, Frascati, Italy

The STIP Study Group 1700
 M. Dryer
 National Oceanographic and
 Atmospheric Administration

V. Cosmic Rays as a Probe of the Solar Wind Wednesday AM

"An investigation of what we can learn about the
 solar wind from studies of the behavior of high
 energy particles".

Chairman: J.R. Jokipii
 University of
 Arizona

Introductory Remarks 0830
 J.R. Jokipii

Review of Cosmic Ray Transport 0840
 H. Volk
 Max Planck Institut, Garching

Contributions on theory applied to solar wind 0930
 and interpretation of observations

Coffee 0950

Panel on Cosmic Ray Gradient 1005

Observations
 F.B. MacDonald, GSFC
 J.A. Simpson, University of Chicago
 J.A. Van Allen, University of Iowa

Contributed observations 1105

Impact of recent observations on theory 1120

L. Fisk, GSFC
 F.B. MacDonald, GSFC
 J.A. Simpson, University of Chicago
 J.A. Van Allen, University of Iowa
 H. Volk, Max Planck Institut

Contributions 1145

VI. Stellar Winds

Wednesday PM

"Placing the solar wind in context".

Chairman: B. Durney
National Center for
Atmospheric Research

Stellar Winds
P. Roberts
University of Newcastle

1330

VII. Spatial Gradients

Wednesday PM

"An examination of the variation of the solar
wind properties with radial distance and latitude".

Chairman: Marcia Neugebauer
Jet Propulsion Laboratories

Radial Gradients
E.J. Smith
Jet Propulsion Laboratory

1430

Coffee

1530

The Distant Solar Wind
J. Wolfe
Ames Research Center

1545

Latitude Dependencies
R.L. Rosenberg and C.R. Winge
University of California, Los Angeles

1600

Three Dimensional Modeling
S. Suess
National Oceanographic and
Atmospheric Administration

1630

VIII. Microscopic Properties of the Solar Wind

Thursday AM

"An examination of the role of waves, turbulence
and heat conduction in determining the observed
properties of the solar wind".

Chairman: R.W. Fredricks
TRW Systems Group

Waves and Turbulence 0830
J.V. Hollweg
High Altitude Observatory

Heat Conduction 0930
M.D. Montgomery and W.C. Feldman
Los Alamos Scientific Laboratory

Coffee 1000

Simulation of Colliding Solar Wind Streams 1015
K. Papadopoulos
University of Maryland

Interplanetary Scintillations 1030
B. Rickett
University of California, San Diego

IX. Solar Wind Interactions: 1 Thursday PM

"A comparison of the interaction of the solar wind with the various classes of objects in the solar wind".

Chairman: J.C. Brandt
Goddard Space Flight Center

Cometary Interactions 1330
L. Biermann
Max Planck Institut, Munich

Interaction with Comet Kohoutek 1430
S. Maran and J.C. Brandt
Goddard Space Flight Center

Interaction with Venus 1445
M. Wallis
Oxford, England

Coffee 1515

Interaction with Mars 1530
P. Cloutier
Rice University

Lunar Interaction 1600
G. Schubert
University of California, Los Angeles

X. Solar Wind Interactions: 2

Friday AM

Chairman: V. Formisano
Laboratorio Plasma
Spazio, Frascati

The Terrestrial Bow Shock 0830
E.W. Greenstadt
TRW Systems

The Terrestrial Magnetosphere and Comparison 0910
With Jupiter's
F.C. Michel
Rice University

Coffee 0945

The Observed Interaction with Jupiter 1000

1. The Jovian Bow Shock

2. The Jovian Magnetosphere 1030

Concluding Remarks

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